Molecular FOUNDRY
A NANOSTRUCTURES USER LABORATORY

THE MOLECULAR FOUNDRY

User Workshop – May26, 2006

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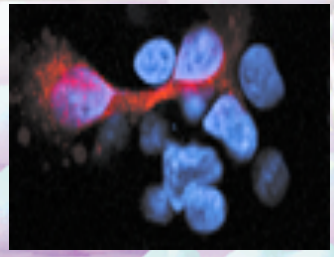
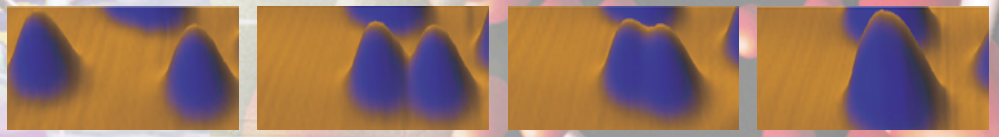
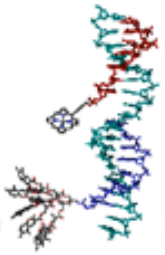




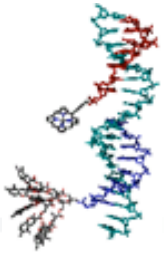
Office of Science
U.S. DEPARTMENT OF ENERGY

User Program



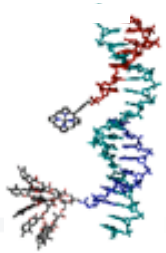
- User Support and Services
- Proposal Review and Approval Process
- Once you're here…
  Housing & Foundry building infrastructure
- User Program Status
- Future plans and Q/A

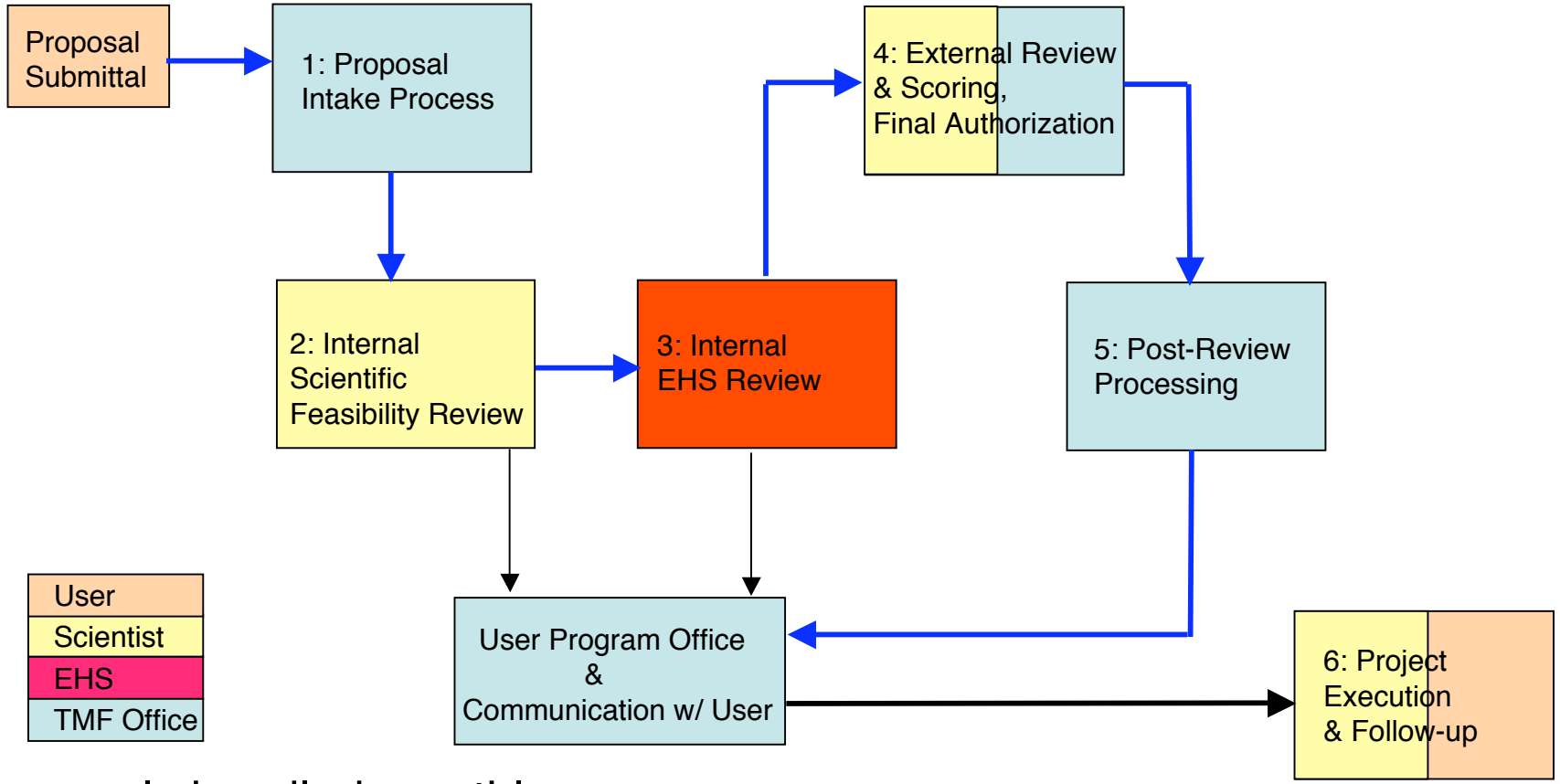
User Office Support and Services



- User proposal intake
- Foundry primary scientific contact assigned
- Internal review process – feasibility & EHS
- Coordinate with ALS, NCEM, NERSC as needed
- External review process – Proposal Study Panel
- Scientific Director Authorization
- Communications with Users
- User Agreement & EHS questionnaire
- User EHS training before and at arrival
- Assistance with housing if needed
- Visitor guest processing

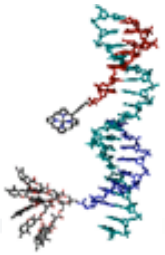
How do I become a User?
Who does what and when?





- Proposals bundled monthly.
- Submittal to decision process takes 2-3 months.
- Project initiation immediately following EHS authorization.
- On-site visit can take up to 60 days depending on citizenship and/or origin.

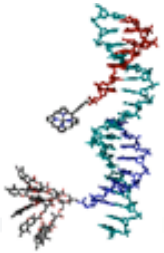
Types of Foundry Projects



- Obtain nanostructures
- Create new nanoscale materials/devices
- Learn to use new methods
- Develop new methods
- Learn to replicate new instruments/ techniques
- Pursue long term collaborations
- Remote or hands-on access to facilities and researchers

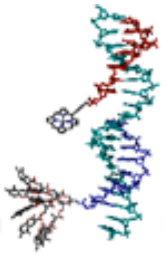
We're reaching out to users from Industry, Academia, Gov't Labs.

The Proposal Form – What does it take to complete?



- User data for all parties (“name, rank, serial number”)
- Home institution’s Contracts Office information
- Which Foundry facilities or affiliated laboratories are you requesting and why?
- Have you been in contact with Foundry staff in preparation of your proposal?
- Long-term goal of the proposed research and its intended impact on the field.
- Description of the aspects of the project that are to be done at the Foundry and at your home institution.
- What is your expected frequency and/or duration of stay at the Foundry?
- Attach a CV and any supporting technical material.

The Proposal Form – 1,2



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User Proposal Form

Proposal Title:

Project Leader (Academic advisor or person responsible for project if not Primary Researcher)

Name:
Affiliation:
Citizenship:
Country of Origin:
Category (postdoc, scientist, faculty, etc. please specify):
Funding Agency:
Affiliation Address:
Phone:
Fax:
Email:

Primary Researcher who would visit the Foundry, if not Project Leader

Name:
Affiliation:
Citizenship:
Country of Origin:
Category (postdoc, scientist, faculty, etc. please specify):
Email:

Co-Researcher 1 (Any others working at the Foundry)

Name:
Affiliation:
Citizenship:
Country of Origin:
Category (postdoc, scientist, faculty, etc. please specify):
Email:

(If there are additional co-researchers, attach text containing names and the above information)

Contracts Office Information;

Contracts Officer – contact name:
Address:
Phone:
Fax:
Email:

Primary Researcher name:
Proposal Title:

Foundry Facilities requested (for each requested facility, describe in one sentence what you would like to do, or which instruments are required)

Inorganic Nanostructures

Nanofabrication

Organic Nanostructures

Biological Nanostructures

Imaging and Manipulation of Nanostructures

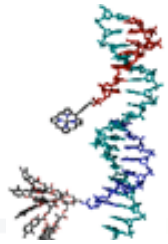
Theory of Nanostructures

Affiliated Foundry Lab (list both lab name and capability requested)

Affiliated Foundry Lab (list both lab name and capability requested)

Does your project require the use of other LBNL national user facilities? (Check here and see question 6) ☐

The Proposal Form – 3,4



User Proposal Form, Page 3

Primary Researcher name:
Proposal Title:

Have you been in contact with Foundry staff regarding this proposal?

Yes or no. If yes, enter name of staff member:

Please clearly answer the following:

1. Describe the long-term goal of your research project.

2. What is the expected significance of this project and its impact on the field?

3. Which aspects of this project require Foundry capabilities?

User Proposal Form, Page 4

Primary Researcher name:
Proposal Title:

4. Describe in some detail the work to be done at the Foundry to accomplish this.

5. Which aspects of this project will be done at your home institution?

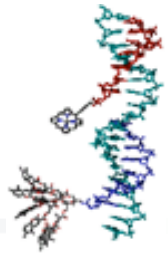
6. Are allied LBNL facilities required for this work? (NCEM, NERSC, ALS, Microfabrication Laboratory). Discuss this need by answering questions 3-5 above with respect to your proposed work at that facility.

7. What is the expected duration of your stay at the Foundry? (Number of visits, length of each)

Please attach the CV of the Project Leader
Attach any supplementary documentation that would help reviewers evaluate this proposal.

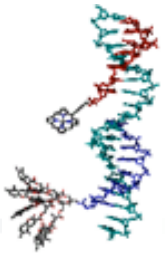
form available at: www.lbl.gov

Proposal Review Procedure



- Internal feasibility and EH&S review
- External Proposal Study Panel
  - Distinguished leaders in the field from other institutions.
- Reviews based on IUPAP criteria
  - Scientific merit
  - Technical feasibility
  - Impact on field
  - Capabilities of investigator(s)

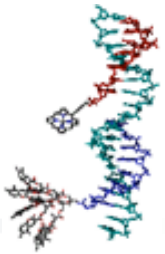
Feasibility Scoring



These questions get answered by Foundry staff prior to external review:

- Is the proposal well focused, written clearly enough to evaluate, and takes good advantage of Foundry facilities to accomplish the stated scientific goals?
- If the proposal is not well focused or clearly written, is it of sufficient merit to invite the PIs to visit the Foundry and discuss the redesign of the plan?
- Impact of Foundry Contribution – To what degree would the Foundry contribution to this work be "leveraged" – with those projects that need limited and defined Foundry activity to complete a broad project favored over those that rely, in the extreme, on Foundry involvement for the entire project.
- Is the work proposed feasible in terms of time, resources, staff, and equipment? If no, provide a few sentences to explain.

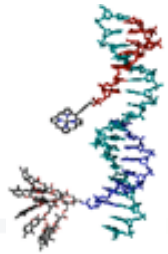
Scientific Evaluation



The following review is conducted by our external proposal study panel:

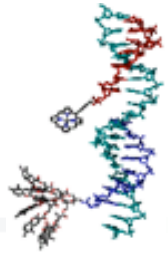
- Does the proposed work advance the interdisciplinary nature of nanoscience?
- Scientific Merit – Will the proposed research contribute significantly to the field?
- Capabilities – Have the investigators a track record of innovative, technically demanding research that makes success of this project likely?
- Add any comments below that you wish to include in your review:

Your proposal gets approved – What next?



- Execute the User Agreement
- Finalize any outstanding EH&S Review items.
- Schedule work plan with the Facility scientist.
- If you're planning to visit the Foundry:
  - Guest processing in advance
  - Scheduling on-site visit.
- User responsibilities include:
  - End of Run Report
  - Publications resulting from work to be reported
  - Publications to carry Foundry/DOE acknowledgment
  - Expenses beyond what is normally provided by Foundry
  - EH&S training and approval prior to on-site work

Upon Approval ➔ the "Step-by-Step"



Information for Users

The instructions below refer to various documents that were included along with your conditional acceptance letter. We look forward to receiving your completed materials so that we can schedule your project.

1. User Agreement
   a. If you have not already done so as part of your proposal submission please provide us with your institution's Contracts Office contact information.
   b. Email that information to Sally Nasman at sfnasman@lbl.gov
   c. An executed User Agreement is required prior to the commencement of research activities.

2. Environmental Health & Safety Review
   a. Review '**A1 EHS training and JHQ info**' and fill out and return the '**A2 JHQ for users**' document to Rick Kelly at rjkelly@lbl.gov
   b. Review '**B1 Instructions for EHS Screening**' and fill out and return the '**B2 EHS Tier 1**' and '**B3 EHS Tier 2 and 3**' screening questionnaires also to Rick Kelly. If you are unsure how to answer any of the questions, contact the Facility Lead Scientist identified on your acceptance letter for help.

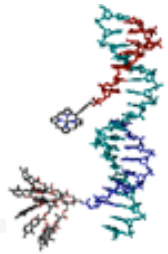
3. Scheduling work
   a. The Facility Lead Scientist identified on your acceptance letter will arrange contact with staff and project start date. Email contact has been provided on that letter.

4. Scheduling on-site visit for hands-on work
   a. Complete the '**C Participating Guest Information Form**' (PGIF) and send it to the Guest Processor, Paris Gordon at pcgordon@lbl.gov, Phone: 510.486.6685, Fax: 510.486.6560. It is also available at http://www.lbl.gov/Workplace/HR/guest/index.html.
   b. One week before your arrival, please contact the Guest Processor to confirm your arrival date, and to make an appointment to complete your registration and obtain your badge. Identification documentation may be required for your visit. Please inquire when you schedule your appointment.
   c. Foreign Nationals:
   If you were born in, are a citizen of, or work for an employer of a sensitive country (see list below), please contact the Guest Processor at pcgordon@lbl.gov, 510-486-6685 to determine if identification documentation is required. Please be sure to have your Participating Guest form to the Guest Processor no later than 90 days before your arrival.

5. User responsibilities
   a. At the completion of your project, as a user of a US Department of Energy National User Facility, you will be asked to complete a DOE "End of Run Report" form.
   b. Publications resulting from research done at the Foundry must carry the following acknowledgment, "Work at the Molecular Foundry was supported by the Director, Office of Science, Office of Basic Energy Sciences, Division of Materials Sciences and Engineering, of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098."
   c. Journal acceptances for publication and publication dates derived from this work are to be reported to the User Program office.
   d. Although your access to the Foundry is free of charge, upon arrival, you may need to establish an account to cover the cost of supplies and incidentals that are determined to be beyond what is normally provided. Your scientific staff contact will make this determination with you.
   e. EH&S training required for your work will be identified via e-mail after your submit the EH&S screening documents. Methods for meeting these training requirements will be described at that time. You are responsible for completing this training prior to performing work in Foundry laboratories.
   f. Requirements for special EH&S approval of work will be identified via e-mail after you submit the EH&S screening documents. Methods for meeting these requirements will be described at that time. You are responsible for meeting all EH&S permitting and review requirements before your work in the Foundry can begin.

6. Housing Information
   a. Many nearby short-term housing options are available. See: http://www.lbl.gov/Workplace/near-our-shuttle.html
   b. A few apartments maintained by the LBNL Advanced Light Source (two bedrooms, each with two beds), one bath, a kitchen, and a living area are also available: http://www-als.lbl.gov/als/quickguide/housing.html, Contact Barbara Phillips (510-486-7666, alsrooms@lbl.gov).

The User Agreement – Why it is important?

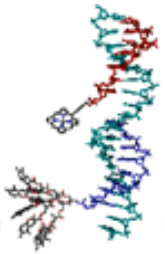


- Initiation of your approved project is predicated on an executed User Agreement.

  Unless you are already affiliated with LBNL, either as an employee or via a joint appointment with UCB, the DOE requires that we have an executed User Agreement in place prior to project commencement.

- User Agreement defines such things as:
  - Scope of services to be provided
  - Duration of the project
  - Admissions requirements (supervision, EHS, documentation).
  - Property rights to furnished equipment, tooling, test apparatus or materials
  - Scheduling controls
  - Intellectual Property rights
  - Export controls
  - Publications
  - Disputes
  - Indemnity and Liability
  - Termination

Intellectual Property Rights

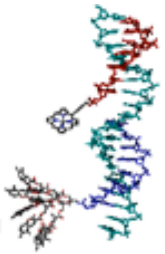


Appendix B of the User Agreement covers IP.

- Ownership follows inventor (User, Foundry, Joint)
- Joint Invention:
  For inventions, conceived or first actually reduced to practice, each party will have the option to elect to retain title.
  ➔ Joint ownership - Where both parties elect to retain title.
  ➔ If a party elects not to retain title, the other party has the option to retain title.

- This IP agreement is NOT like that which is used on Campus.
- Having an executed User Agreement in place protects *your* IP.

Proprietary Work at the Foundry



- Vehicle for collaboration:
  A “funds-in” Cooperative Research and Development Agreement (CRADA).
- More complex than the simpler User Agreement but also handled through our Sponsored Projects Office.
- The funds in would cover the full cost recovery for access to the Foundry.
- While the work may be proprietary, sufficient information must be included in the proposal to evaluate the scientific merit. The normal proposal review process is followed.

Once you're here…

Housing information:

a) Many nearby short-term housing options are available. See "Living in Berkeley" at: http://www.lbl.gov/Workplace/HumanResources/irss/

b) A few apartments are maintained by the LBNL ALS. See http://www-als.lbl.gov/als/quickguide/housing.html or contact the ALS at alsrooms@lbl.gov (510) 486-7666.

Living room area, bedroom, and outside view of the ALS Apartments.

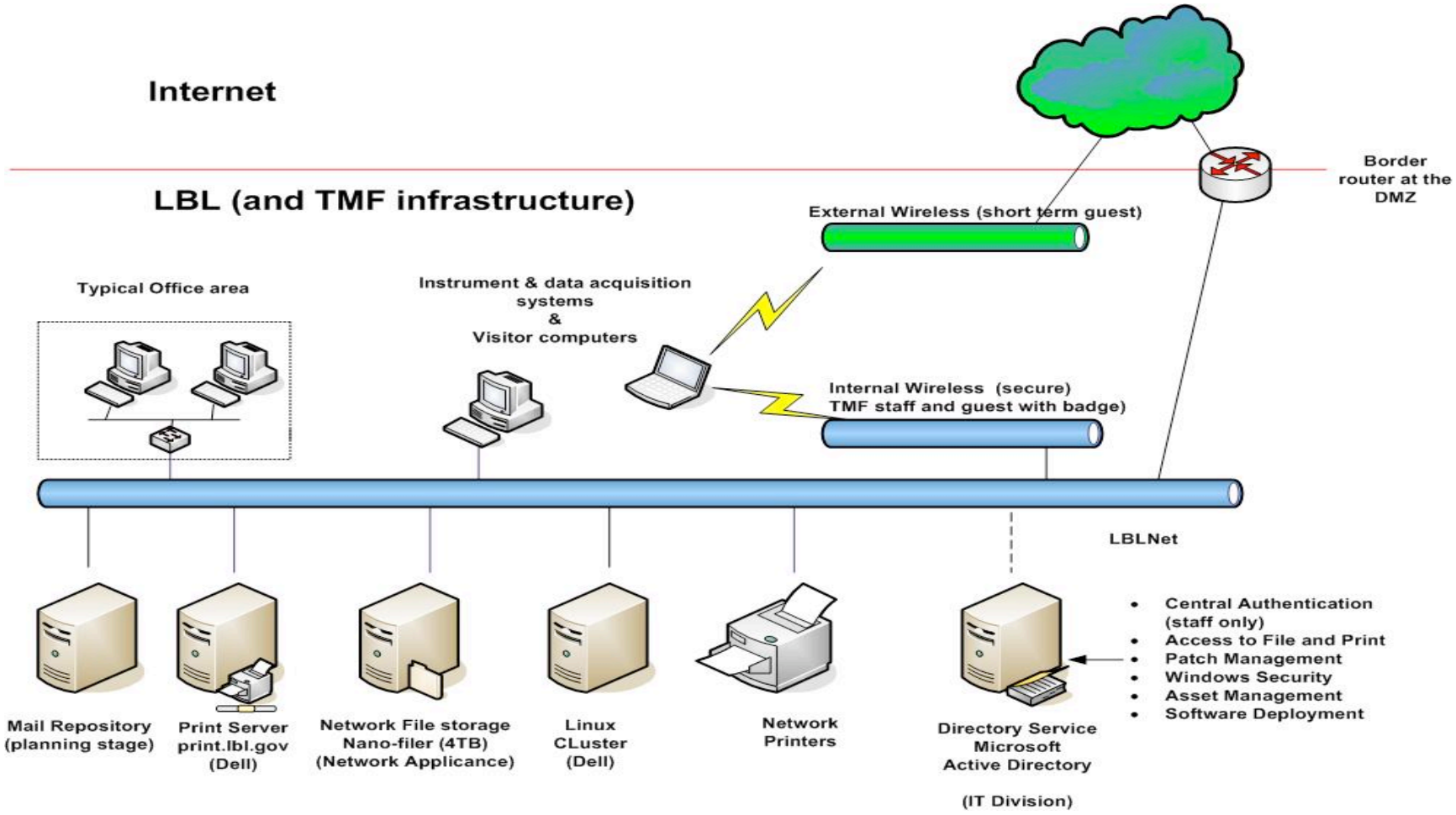
c) In the Spring of 2008… The Berkeley Guest House!

Proposed Berkeley Lab Guest House

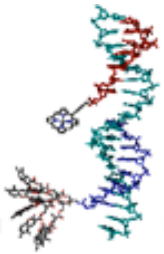
Molecular Foundry

Berkeley Lab Guest House

Foundry Computing Infrastructure



Status of the User Program - Timeline



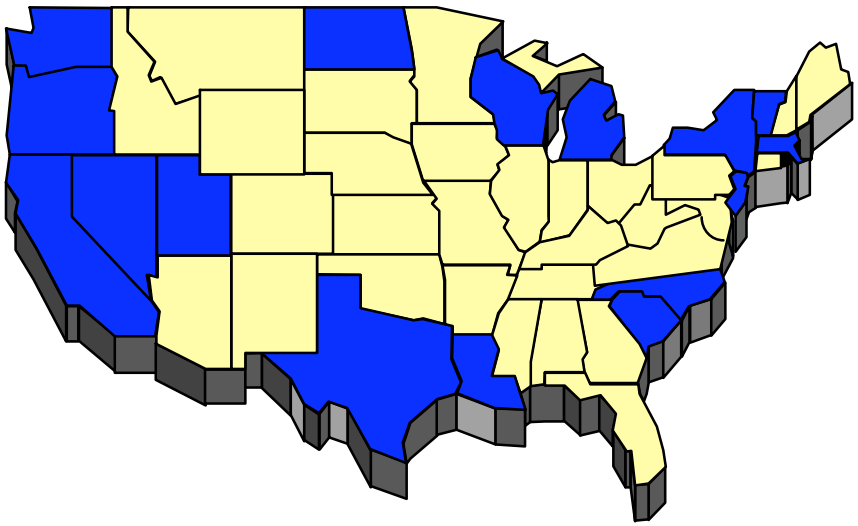
Timeline:

- Jump Start, the first two years
- Initial Operations began October-05
- Foundry building occupancy began April-06
- Finish equipment installation by Nov-06
- Steady-state staffing and operations beginning Oct-06

We've been approving proposals and taking on new project all along. We're now ramping our efforts.

Status of the User Program – Statistics

- 102 proposals received
- 67 proposals accepted (23 completed, 29 active)
- 16 states and 4 foreign countries represented (approved)



+

Austria
France
Germany
Spain

Domestic Distribution

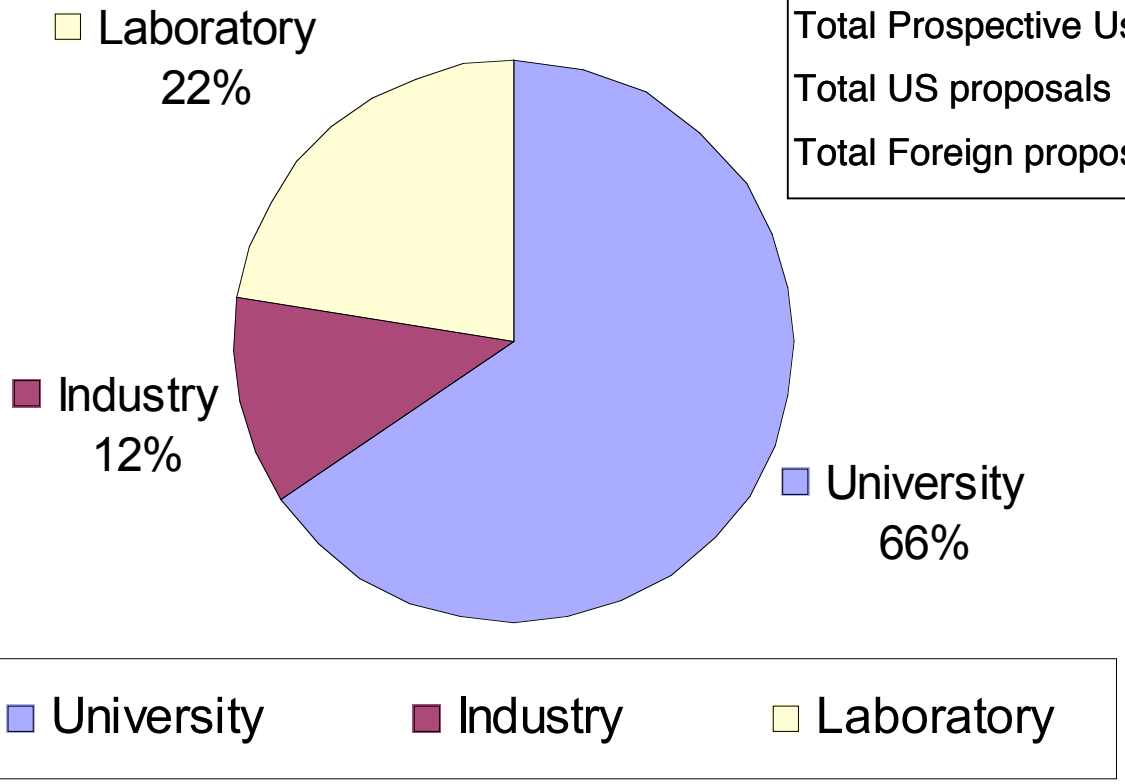
California – 40
Delaware – 1
Louisiana – 1
Massachusetts – 3
Michigan – 1
Nevada – 1
New Jersey – 1
New York – 1
North Carolina – 1
North Dakota – 1
Oregon – 2
South Carolina – 1
Texas – 3
Utah – 1
Vermont – 1
Washington – 3

5-01-06

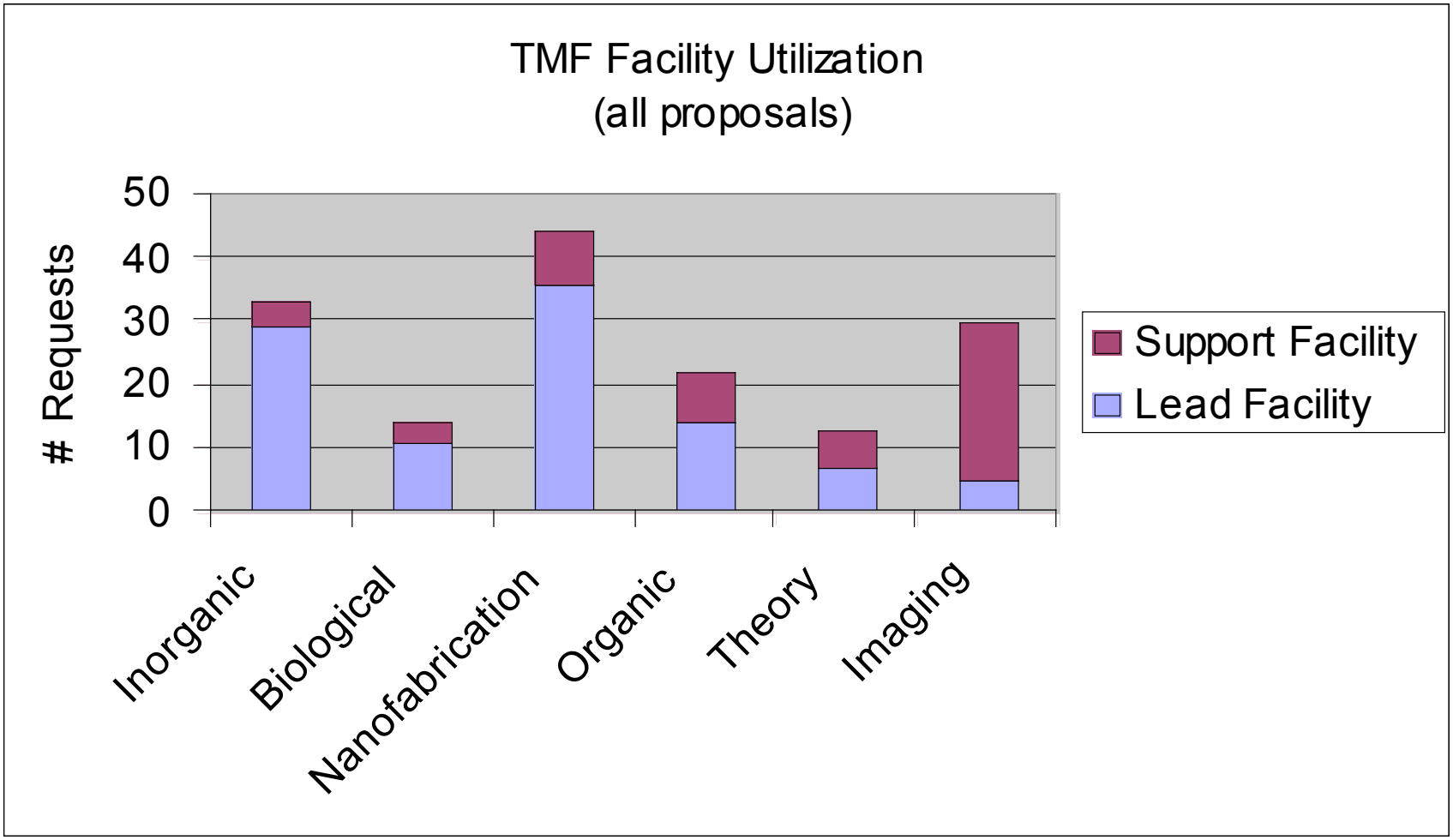
Prospective User Affiliations

Similar demographics for –
submitted proposals vs approved projects

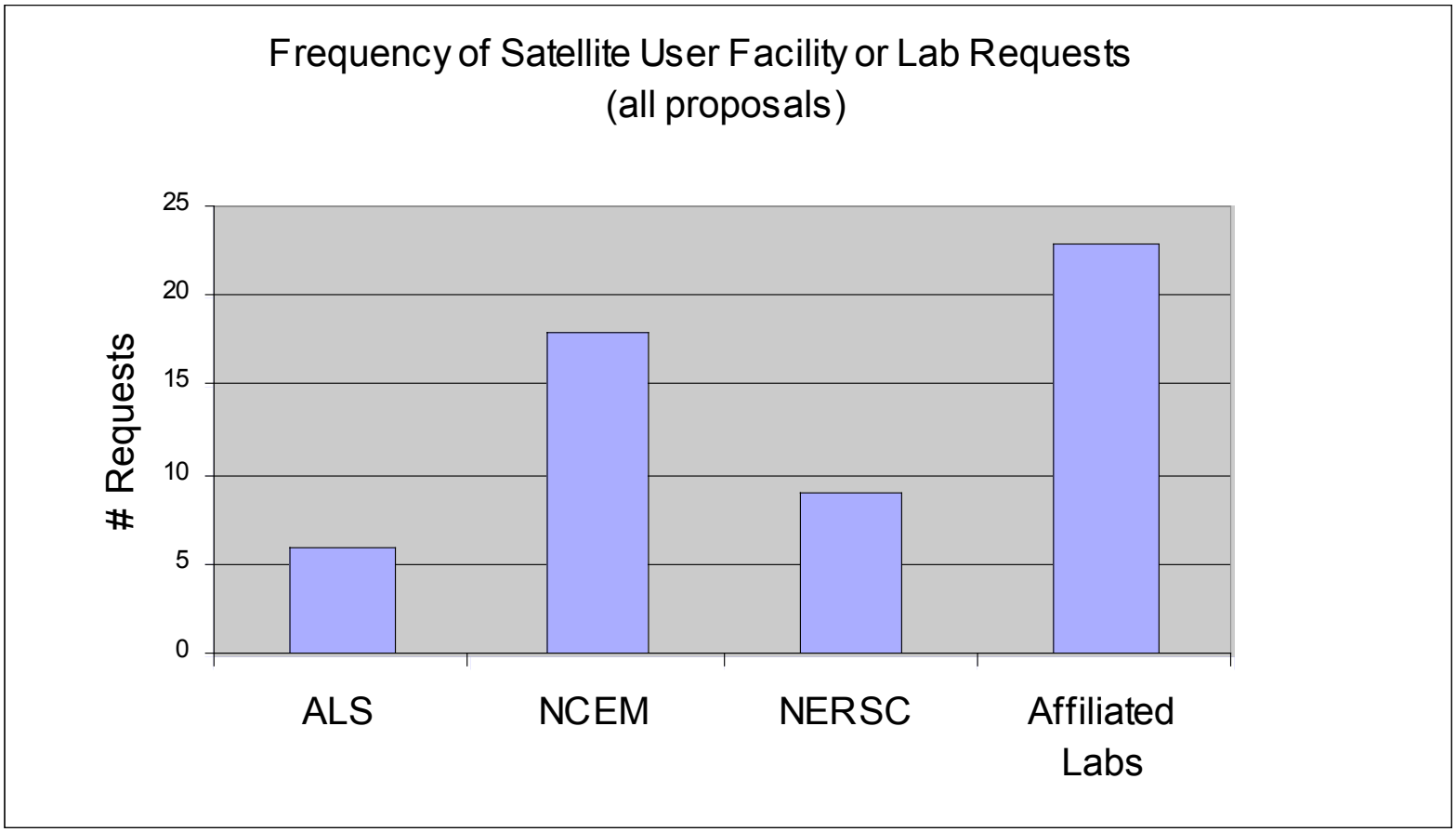
	All / Approved
Total Prospective Users	216 / 139
Total US proposals	95 / 63
Total Foreign proposals	7 / 4



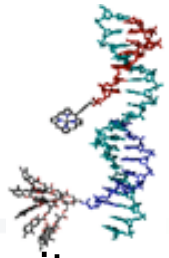
Foundry Facility Request Distribution



Foundry User Requests for other Facilities



Summary – User Program



- User support functions in place and are being expanded to better suit the future user program and your needs.
- External Proposal Study Panel identified and reviewing proposals.
- Plan is to have a web-based relational database in place by Q4-2006 to handle proposal intake and Proposal Study Panel reviewing.
- Mechanics for initiating an approved project to be streamlined.
- User Program has a healthy number of active projects.
- Outreach to expand as staffing ramps in support of scientific program.

Learn more at http://foundry.lbl.gov/ or jmbustillo@lbl.gov